

Serial No. 10/029,590
Amendment and Response to Office Action
Mailed: 28 September 2005

REMARKS

In the Office Action, the Examiner stated that claims 1, 13 and 38 were rejected under 35 U.S.C. 112, second paragraph and claims 1 – 38 were rejected under 35 U.S.C. 102 as being unpatentable over Dobbins et al. (U.S. Patent No. 5,825,772) and objected to claims 25 - 26 as being dependent upon a rejected base claim. The Examiner further stated that the objected claims would be allowable if rewritten in independent form including all limitations of their respective base claims.

By this paper, the Applicant has amended claims 1, 13, and 38. Claims: 1 – 38 are now pending. The amendments to the claims do not add any new matter. In view of the forgoing amendments and the following remarks, the Applicant respectfully requests reconsideration and allowance of all pending claims.

Claim Rejections under 35 U.S.C. § 112, second paragraph

In the Office Action, the Examiner rejected claims 1, 13, and 38 under 35 U.S.C. § 112, second paragraph as being indefinite. Examiner cited Claim 1 as *"vague and indefinite because it is unclear of what test is being conducted in the limitation 'if the gathered information pertaining to each of said switch port passes each test in at least a subset of the plurality of test.'"* Applicant has amended claims 1, 13 and 38 to clarify that *"plurality of tests determine if said switch port and link connected thereto comply with expected switch fabric configuration."* With these amendments claims 1, 13, and 38 are in a condition for allowance.

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Claim Rejections under 35 U.S.C. § 102

In the Office Action, the Examiner rejected claims 1 – 38 as being anticipated by Dobbins et al. (U.S. 5,825,772).

Claim 1 (Office Action paragraph 4.1)

Examiner states that Dobbins teaches: *“A method of verifying the configuration of a switching fabric....”* Dobbins teaches a method of establishing a virtual directory. Dobbins only configuration teaching is directed to a fully-connected mesh topology established autonomously via the link state protocol running in each switch. *“The topology services are built into every switch, which allows each switch to be completely autonomous in its behavior ... A link state protocol is used because it provides a fully-connected mesh topology ... that is distributed in each switch. ... One of the key aspects of the link state protocol is that it runs completely ‘plug-and-play’ out of the box, with no configuration whatsoever.”* (col. 3, lines 39 – 56)

Applicant notes that such an autonomous method of establishing the fabric can lead to problems in some implementations. *“When a large number of components [are] needed to construct an external fabric, there are many ways to interconnect the components and some of these ways lead to configurations that can cause the cluster to fail to operate properly.”* (Lee, page 3, lines 19 – 21) *“Failures are not restricted to occurring during the first installation of the cluster. Failures may also develop and affect an operational cluster during procedures such as replacing failed switches or links, scaling the cluster by adding more switches or end nodes,*

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reconfiguring the cluster topology, and installing new versions of hardware, firmware, or configuration files in switches." (Lee, page 3, lines 24 – 28)

As there is a need for establishing and maintaining topologies other than the autonomously established fully-connected mesh topology taught by Dobbins, Applicant's claim 1 states "*A method of verifying the configuration of a switching fabric....*" Applicant's method of "*gathering from the switch, stored information*" and "*performing a plurality of test on the gathered information*" to "*determine if ... comply with expected switching fabric configuration*", as recited in claim 1, allows problems to be detected to prevent the cluster from malfunctioning or crashing.

Claim 3 (Office Action paragraph 4.3)

Examiner states that Dobbins teaches: "*A method ... wherein any neighboring port connected to a switch port belongs to an expected fabric; and wherein the plurality of tests on the gathered information includes a test to determine whether the neighboring port belongs to the expected fabric. (col. 13, line 47 – col. 17, line 2).*" Applicant notes cited paragraphs do not describe "*belong[ing] to an expected fabric*", as cited in claim 3, as opposed to a different fabric. Further, Dobbins teaches that all switches are part of a single domain. "*Due to the 'flat' nature of switched fabrics, and the unrelated nature of MAC address assignments, the present protocol does not provide for summarization of the address space (or classical IP subnet information), or level 2 routing (IS-IS Phase V DECNet). There exist a single area, and every switch within that area has a complete topology of the switch fabric. Because a single domain exists for the switch*

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fabric, there is no reason to provide for interdomain reachability.” (Dobbins, col. 16, lines 11 – 19)

Claim 4 (Office Action paragraph 4.4)

Examiner states that Dobbins teaches: “*A method ... wherein any neighboring port connected to any switch port has an expected port number*” Dobbins fails to teach “*otherwise, disabling each said switch port for data traffic*”, as recited in claim 1 if “*the neighboring port [doesn't have] the expected port number*” as recited in claim 4. Applicant cites previous remarks regarding the autonomously established fully-connected mesh topology.

Claim 5 (Office Action paragraph 4.5)

Examiner states that Dobbins teaches: “*A method ... wherein any switch having a port connected to said switch port has a global unique identification (GUID) number ... a test to determine whether the global unique identification of the neighbor port has a valid format. (col. 16, lines 40 – col 17, line 43)*” Dobbins fails to teach “*otherwise, disabling each said switch port for data traffic*”, as cited in claim 1 based on “*test[ing] to determine whether the global unique identification of the neighboring port has a valid format*” as cited in claim 5. Applicant cites previous remarks regarding the autonomously established fully-connected mesh topology.

Claim 6 (Office Action paragraph 4.6)

Examiner states that Dobbins teaches: “*A method ... wherein any switch, having a port connected to said switch port, has a configuration version id, a configuration tag and a manufacturing part number; ... a test to determine whether the configuration version id,*

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configuration tag and manufacturing part number of the switch connected to said switch port have valid formats. (col. 16, lines 40 – col. 17, line 43).” Applicant notes that cited paragraph discuss only link status information for the ports within the switch and do not address “*a configuration version id, a configuration tag, and a manufacturing part number*”, as cited in claim 6, or any other general information about the switch or its configuration data or firmware stored within. Applicant further remarks that Dobbins fails to teach “*otherwise, disabling each said switch port for data traffic*”, as cited in claim 1 based on “*test[ing] to determine whether the configuration version id, configuration tag and manufacturing part number of the switch connected to said switch port have valid formats*” as recited in claim 6. Applicant again cites previous remarks regarding the autonomously established fully-connected mesh topology.

Claim 7 – 10 (Office Action paragraphs 4.7 – 4.10)

Examiner states that Dobbins teaches: “*A method ... wherein there is a single bundle in the switching fabric, said bundle including two or more links that interconnect neighboring switches.*” (Office Action paragraph 4.7); “*A method ... wherein any neighboring port connected to said switch port is part of the bundle, ...*” (Office Action paragraph 4.8); “*A method ... wherein there are a least two bundles in the switching fabric ...*” (Office Action paragraph 4.9); and “*A method ... wherein any neighboring port connected to said switch port is part of the first bundle, each port in the bundle having the same GUID*” (Office Action paragraph 4.10). Applicant remarks that Dobbins fails to teach bundling in any form. Dobbins teaches away from bundling by specifying “*a Dijkstra algorithm may be run to computer routes to all known*

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destinations in the network.” (col. 15, lines 57 – 59) As one skilled in the art is aware, the Dijkstra algorithm will return a single shortest path and when multiple shortest paths exist, the path with the fewest edges will be returned. While Dobbins does teach the use “multiple equal-cost paths to a given destination may be chosen to provide load balancing” (col. 13, lines 55 – 56) Dobbins does not teach the concept of bundling where a “bundle include[s] two or more links that interconnect neighboring switches” as cited in claims 7 – 10.

Claim 11 – 12 (Office Action paragraphs 4.11 – 4.12)

Examiner states that Dobbins teaches: “*A method ... wherein any switch, having a port connected to said switch port, has a configuration tag to uniquely specify an expected cluster topology ID ...*”(Office Action paragraph 4.11) and “*A method ... wherein any switch, having a port connected to said switch port, has a firmware release revision*” (Office Action paragraph 4.12). Applicant refers back to previous remarks concerning Dobbins’ teaching only Link status information for the ports within the switch and not addressing general information about the switch including “*configuration tag to uniquely specify an expected cluster topology ID and an expected position ID of the switch*”, as cited in claim 11, or “*firmware release revision, firmware release major revision, firmware minor revision, configuration major revision, and configuration minor revision*” as cited in claim 12.

Claim 13 – 24, and 27 - 38 (Office Action paragraphs 4.13 – 4.24 and 4.27 – 4.38)

Concerning Office Action paragraphs 4.13 – 4.38, which discuss similar rejections of independent claims 13, 18, 37 and 38, and the dependant claims which follow them, Applicant

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refers back to the remarks above and similarly ask that these claims now be considered in a state to be acceptable.

Claim 25 - 26

Regarding the claims 25 - 26, the Examiner objected as these claims were based upon independent claims which were rejected. Applicant would like to thank the Examiner for indicating that these claims contain allowable subject matter. Applicant declines to rewrite these claims in independent form, as suggested by the Examiner, as he has now placed the base claims in a state of allowance, and therefore ask that the Examiner consider claims 25 - 26 to also be in a condition for allowance.

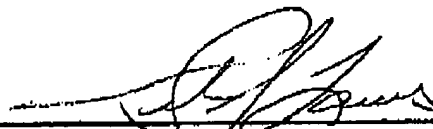
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Conclusion

The Applicant respectfully submits that all pending claims are in condition for allowance. However, if the Examiner wishes to resolve any other issues by way of a telephone conference, the Examiner is kindly invited to contact the undersigned at the telephone number indicated below.

Respectfully submitted,

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